

caution against their use for dyeing eyebrows and eyelashes, and the statement that such use may cause blindness.

An important section of the law requires that new drugs can be introduced in interstate commerce only after filing an application, with submission of evidence and data, and the securing of a permit from the Secretary. Refusal by the Secretary of such a permit may be appealed to the federal courts. If this provision of the law had been in effect a year ago, the series of unfortunate deaths from the use of an elixir of sulfanilamide probably would not have occurred.

The new law does not cover meat and meat food products, which are still subject to the Meat Inspection Act of 1907, as amended. It also keeps in effect various other existing laws, such as the Butter Standards Act of 1923, the Filled Cheese Act of 1896, the Filled Milk Act of 1923, and the Import Milk Act of 1927.

The Federal Food, Drug, and Cosmetic Act of 1938, as sponsored by the late Senator Royal S. Copeland, represents a noteworthy advance over its 32 year old precursor, the Federal Food and Drug Act of 1906, as occasionally but inadequately amended. The enforcement of this law after June 25, 1939, should do much to aid in the protection and promotion of public health in this country.

#### REFERENCES

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### THE AIRPLANE AND YELLOW FEVER

THE rapid multiplication of airplanes of all types and the tremendous increase in their use for personal transportation has necessarily been a matter of great concern to all nations. A number of reports have been made and efforts are under way to bring about international agreements and methods for inspection of passengers and for disinsectization of the planes. The increase in the use of planes is shown to some extent by a report<sup>1</sup> of the examinations made at Khartoum: 287 in 1935; 667 in 1936; and 364 up to July 2, 1937. Indeed Khartoum is now a modern city and the crossroads for airships coming from many different directions. Its airport is the stopping place for all of the great lanes. Apparently this gives an abundance of time for disinsectization and inspection, which requires a longer or shorter time, according to the arrangements of the interior and the number of insects which it is necessary to capture. At least one-half hour is required for inspection. The work of the Custom officers and of the Postal service should be delayed until the planes have been cleared of insects. It is interesting to note that in the Sudan until 1936 the insecticides employed were "Flit" and "Shelltox," widely used in this country, but since then a cheaper mixture made on the spot is used, which has the added advantage of being practically noninflammable.\*

Mosquitoes are found chiefly in the compartments occupied by passengers, but also in the baggage compartments, especially in those planes in which these are reached by a separate door at the side. So far no mosquitoes have been

\* Extract of pyrethrum..... 5.8 per cent  
 Essence of citronella..... 2 per cent

Tetrachloride of carbon..... 49 per cent  
 Kerosene . . . . . 43.2 per cent

found in the new hydroplanes which have been put in service since April, 1937. For over 3 years, only 3.5 per cent of planes examined at Khartoum have harbored mosquitoes. Of these, 79 per cent are those coming from the East. The great majority of mosquitoes found so far have been *Culex* and only 10 *Anopheles*.

An elaborate report<sup>2</sup> covers the sanitary conditions of airplane navigation in the French Colonies and Mandates. So far everything has gone remarkably well, in spite of the fact that the international agreement of April, 1933, has not been ratified by France and consequently not promulgated in her Colonies. Most of the airports of the French Colonies are in regions where yellow fever has been known or is quiescent, and in which there should be provisions to protect against the disease. It is pointed out that there are considerable areas of dispersion of yellow fever virus in South America and in Africa, and great possibilities of spread if there is introduction of carriers or the insect vector by airplanes.

Vaccination against yellow fever seems to be the ideal, but so far it is inapplicable to those populations living in these areas. It is held that in order to give complete security it should be carried out in laboratories, be controlled frequently, and revaccination done where the tests show insufficient protection. Such conditions are not applicable to masses.

One has only to look over the various airplane routes as summarized by Inspector Sorel to realize the possibilities of spread of disease by planes. The French use four great lanes in common with several other countries in reaching their colonies and mandates. Joining these great highways are sidelines, practically all of which connect with areas in which yellow fever might exist.

America<sup>3</sup> is not at all free from some of the dangers due to rapid travel by airplanes. Our Public Health Service is represented in the International Office of Public Hygiene, and has always been awake to the situation. At Miami, steps have been taken to guard against the importation of the *Aedes aegypti*, and researches are being made on better methods for disinfection of airplanes. A special corps is being instructed to study the *Aedes aegypti* in the cities of the South, and it is held that no airport of entry should be established within 20 miles of a city which shows a high index for *Aedes*.

In August, 1937, a living *Anopheles maculipennis* was found in a Chinese Clipper arriving at Honolulu from Alameda, Calif. Hence, instructions have been given to the Pan-American Airways and to the Medical Officer of the Quarantine Station at San Francisco that a complete fumigation be done at departure by an operative of the Service.

The constant travel of passengers from the United States to South America and back again, which can take place within a week, shows the necessity of the greatest care in our contacts with those of our neighbors on the South within whose borders yellow fever is found.

The greatest menace in the world today, and perhaps the one which is being thought of most, is the possible infection of India by yellow fever. The climate is suitable and apparently all it needs is the introduction of the virus. There we have several hundred million people who have never been exposed to yellow fever, who exist on a low plane of living, and who, as far as we can judge, would be very susceptible to the disease, yet planes of the Imperial Airways have flown from the Sudan to India in less than 48 hours.

We have been forced to abandon the "simple man-*Aedes aegypti*-man epi-

demiology," though it still yields perfect results in many areas. The virus of yellow fever has been transmitted in the laboratory by several species of mosquitoes found in Africa and South America other than the *Aedes aegypti*, and, in 1935, we were shocked by the discovery of "Jungle Yellow Fever," perhaps the natural and more permanent form of the disease.<sup>4</sup>

*Aedes* from both Egypt and India have been found susceptible to laboratory infection. Opportunities for the introduction of yellow fever into India certainly exist, and are multiplying constantly.

This imperfect sketch founded on an elaborate report by experts must demonstrate to everyone the necessity of international coöperation in the establishment of airports, their freedom from mosquitoes known to carry disease, the regulations concerning passengers, the disinfection of airplanes, etc. All of this applies with double force to airports of entry.

#### REFERENCES

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### NEW LIGHT ON OLD BELIEFS

THE announcement of the discovery of the tubercle bacillus in 1882 was followed immediately by experimental studies of various sorts, notable among which were those of two of the great scientists of the veterinary profession.<sup>1</sup> Nocard in France and Bernard Bang in Copenhagen, reported respectively at the first Congress on Tuberculosis in 1888, and the Congress of Hygiene, 1891. Both were concerned with the possible danger of the transmission of tuberculosis to human beings by eating the flesh of tuberculous cattle.

Nocard injected large quantities of tubercle bacillus into the veins of cattle. Within a few hours, the blood was absolutely free from the germs which had been introduced. In a few days, the many organisms which had been caught in the muscles had been destroyed or, as he said, at least put in such a condition as to be of no danger—they had lost their power of multiplication as well as their virulence. Bang drew blood from twenty cows with advanced tuberculosis and after defibrination, injected it into the peritoneal cavities of 38 rabbits and 2 guinea pigs in doses of from 10 to 18 c.c. Only two of the inoculated animals showed positive results and the cow whose blood had proved virulent was affected by an acute miliary tuberculosis following an injection of tuberculin.

Without discussing further the many experiments which have been done, it may be said that as early as 1883 experiments had shown that in the immense majority of cases, the danger of infection was confined entirely to the tuberculous lesions and that the blood and the juice from the muscles in particular only exceptionally carried tubercle bacilli.

It has, of course, been recognized for many years that in probably every case of tuberculosis in cattle which went on to death, there are moments when through the disruption of a tubercle, germs are thrown directly into the blood, but, as in the experiments quoted above, the blood rapidly gets rid of the germs which have been thrown into it.

This has been the teaching for many years and the results have proved the practical correctness of the experimental findings.